

## Depression and Stigma in Medical Students at a Private Medical College

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### ABSTRACT

**Objectives:** This study aimed to assess prevalence rate of depression and perceptions regarding stigma associated with depression amongst medical students. **Materials and Methods:** A cross-sectional survey was conducted amongst 331 undergraduate medical students at a private medical college in Gujarat. Data was collected, which comprised of socio-demographic details, Patient Health Questionnaire (PHQ-9), and a 22-item semi-structured questionnaire to assess personal, perceived, and help-seeking stigma. Univariate analysis and chi-square tests were used to test for association between variables. **Results:** Overall prevalence of depression was found to be 64%. Highest level of depression was seen in first year. Moderate to severe depression was found in 26.6% students. 73.3% students felt that having depression would negatively affect their education, and 52.3% saw depression as a sign of personal weakness. Females more strongly believed that students would not want to work with a depressed student (50.9% v/s 36.2%) and that if depressed, they would be unable to complete medical college responsibilities (61.9% v/s 44.1%). With increasing academic year, there was increase in stigma about disclosing depression to friends ( $P = 0.0082$ ) and increase in stigma about working with a depressed student ( $P = 0.0067$ ). Depressed students felt more strongly than non-depressed students on 10 items of the stigma questionnaire. **Conclusions:** High stigma exists among students about the causation of depression, and there exists an environment in which students discriminate fellow colleagues based on the presence of depression. This raises need for increasing awareness and support from peers and faculty.

**Key words:** Depression, medical students, stigma

### INTRODUCTION

High prevalence of depression among medical students has been noted in earlier studies.<sup>[1]</sup> Most studies have been conducted in western countries and in other parts of the world.<sup>[1-4]</sup> Studies on depression amongst medical students in the Indian subcontinent are scanty.<sup>[5-7]</sup>

Previous studies have found poor utilization amongst medical students, despite the availability of effective medications and confidential mental health services.<sup>[8,9]</sup> Stigmatizing attitudes about depression and mental health services may represent a barrier to seeking help and support.<sup>[9,10]</sup> The most frequently cited barriers to using these services in a qualitative study were lack of time, lack of confidentiality, stigma associated with using mental health services, cost of treatment, fear of documentation on academic record, and fear of unwanted intervention.<sup>[9]</sup>

Schwenk *et al.*<sup>[11]</sup> addressed in specific details the perceptions of stigma by depressed medical students that may serve as barriers to seeking help and support. They found that depressed medical students more strongly held several depression stigma beliefs

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than non-depressed students.<sup>[11]</sup> There is dearth of epidemiological studies on depression and stigma related to depression and utilization of mental health services amongst medical students in India.

The aims of this study were to identify 1) prevalence rate of depression among medical students, 2) perceived need for psychological help and academic help in medical students, 3) perceptions of medical students regarding stigma associated with depression.

## MATERIALS AND METHODS

### Subjects and procedures

An anonymous cross-sectional survey was conducted amongst 400 undergraduate medical students enrolled at a private medical college in Gujarat, during the initial part of the academic year between May and June 2012. Of these, 82.7% ( $n = 331$ ) participated in the survey. Students who were absent on the day of study and could not be contacted during a revisit were not included in the study. Institutional Human Research Ethics Committee approval was obtained prior to the study.

### Instruments

The questionnaire included socio-demographic details, Patient Health Questionnaire (PHQ-9),<sup>[12]</sup> and 22 statements to tap depression-related stigma beliefs. Also, the perceived needs for psychological and academic help over the past 12 months were tapped using yes-no questions.

PHQ-9 is a validated questionnaire to screen for depression. Cut-off scores used were 0-4 for no or minimal depression, 5-9 for mild depression, 10-27 for moderate to severe depression.<sup>[12]</sup> In comparison to a mental health provider structured interview, scores of 5-9 on PHQ-9 represent respondents with either no depression or sub-threshold depression (minor depression and dysthymia).<sup>[12]</sup> At a cut off  $\geq 10$  on PHQ-9, respondents were most likely to meet DSM-IV criteria for major depressive disorder (likelihood ratio  $\geq 7.1$ ).<sup>[12]</sup>

Twenty-two statements to tap depression-related stigma were selected based on an earlier study among medical students in US<sup>[11]</sup> and validated instruments for general population (Depression Stigma Scale<sup>[13]</sup> and Depression Self-Stigma Scale).<sup>[14]</sup> The questions related to domains of personal stigma, perceived stigma, and help-seeking stigma and were answered using 3-point Likert scale (Agree, Neither agree nor disagree, Disagree). There were 4 positively worded and 18 negatively worded statements. Disagreement on a positively worded statement and agreement on a negatively worded statement was considered as stigmatized response. The

questions were adapted to be contextually relevant to medical students. For example, the statement "Person with depression could snap out of the problem" was changed to "Medical students with depression could come out of depression whenever they want to."

### Statistical analysis

Data was analyzed using Microsoft Excel 2007 and SPSS 14. Univariate analysis was performed and the chi-square test was used to test for association between variables. The threshold for statistical significance was set at the standard  $P$  value of 0.05. Responses with missing values were excluded [Table 1]. Ambivalent responses ("Neither agree nor disagree") were excluded when studying the variance in depression-related stigma beliefs by gender, academic year, and PHQ-9 scores [Tables 2-4].

## RESULTS

A total of 331 participants enrolled in the study. Demographic characteristics of the study sample are represented in Table 5. More than 80% students from each academic year could be included in the study.

Prevalence of self-identified depression (PHQ-9  $\geq 5$ ) was found to be 64% [Table 6] with 1<sup>st</sup> and 2<sup>nd</sup> years students having significantly higher levels than 3<sup>rd</sup> and 4<sup>th</sup> year students ( $P = 0.0096$ , Table 7). Highest level of depression on PHQ-9 was seen in the 1<sup>st</sup> year. Prevalence of moderate to severe depression (PHQ-9  $\geq 10$ ) was found to be 26.6% [Table 6].

Need for psychological help and academic help was reported by 42.9% and 55.2% of the students, respectively [Table 6]. There was significant difference in need for academic help by academic year ( $P = 0.008$ , Table 7). Students with moderate to severe depression had significantly higher need for psychological help and academic help ( $P < 0.0001$ , Table 8).

Study population distribution of depression-related stigma beliefs was calculated [Table 1]. Ambivalent responses on beliefs items ranged from 14.9% to 37.7%. On the personal stigma beliefs, 73.3% students felt that having depression would negatively affect their education, 52.3% saw depression as a sign of personal weakness, 45.4% endorsed ability to come out of depression at will, 41.6% felt that they would be unable to complete responsibilities as well as others, 36% felt students with depression are to blame for their problems, and 34.2% felt they would feel embarrassed or ashamed if depressed.

On the perceived stigma beliefs, 39.3% felt other students would respect their opinion less, 36.4% felt

students and teachers would view a depressed student as unable to handle their responsibility, 35% felt students who knew would tell other students or teachers.

On the help-seeking stigma beliefs, 36.2% felt asking for help would mean inadequate coping, 34.7% felt other student asking for help would mean inability to handle stress, 28.6% felt seeking help for depression would make them feel less intelligent, and 28.1% felt telling a counselor or mentor would be risky.

Variance in the depression-related stigma beliefs according to demography and depression scores was analyzed. Female students more strongly felt that students would not want to work with a student who is depressed ( $P = 0.0341$ , Table 6) and that if they were themselves depressed, they would be unable to complete medical college tasks and responsibilities ( $P = 0.0062$ , Table 6). With increasing academic year, there was increase in stigma about disclosing depression

to medical college friends ( $P = 0.0082$ , Table 7) and increase in stigma about working with a student who is depressed ( $P = 0.0067$ , Table 7).

Ten depression-related stigma beliefs varied significantly according to depression levels. On personal stigma beliefs, [Table 2] students with moderate to severe depression ( $\text{PHQ-9} \geq 10$ ) felt more strongly that they would feel embarrassed or ashamed if depressed ( $P < 0.0001$ ), medical students with depression are to blame for their problems ( $P = 0.0017$ ) and that depression is a sign of personal weakness ( $P = 0.023$ ).

With respect to perceived stigma beliefs, [Table 3] students with moderate to severe depression felt more strongly that friends who knew would tell other students or teachers ( $P = 0.0021$ ), other students would avoid them if discovered that they were depressed ( $P = 0.01$ ), other students and teachers would view them as unable to handle responsibilities ( $P = 0.017$ ).

**Table 1: Study population distribution of depression-related stigma beliefs**

Variable	Stigmatized response*	Ambivalent response	Non-stigmatized response
<b>Personal stigma beliefs</b>			
If I were depressed, I would worry that my education would suffer. ( $n=329$ )	241 (73.3)	52 (15.8)	36 (10.9)
Depression is a sign of personal weakness. ( $n=329$ )	172 (52.3)	62 (18.9)	95 (28.8)
Medical students with depression could come out of depression whenever they want to. ( $n=328$ )	149 (45.4)	91 (27.7)	88 (26.9)
If I were depressed, I would be unable to complete medical college tasks and responsibilities as well as other students. ( $n=329$ )	137 (41.6)	66 (20.1)	126 (38.3)
Medical students with depression are to blame for their problems. ( $n=328$ )	118 (36)	90 (27.4)	120 (36.6)
If I were depressed, I would feel embarrassed or ashamed. ( $n=327$ )	112 (34.2)	79 (24.1)	136 (41.7)
If I were depressed, I would tell my medical college friends. ( $n=330$ )†	74 (22.4)	49 (14.9)	207 (62.7)
Depression is a real medical illness. ( $n=327$ )†	47 (14.4)	66 (20.2)	214 (65.4)
<b>Perceived stigma beliefs</b>			
If I were depressed, other medical students would respect my opinions less. ( $n=328$ )	129 (39.3)	82 (25)	117 (35.7)
Other students and teachers would view me as unable to handle my responsibilities if I were depressed. ( $n=329$ )	119 (36.4)	81 (24.6)	129 (39)
If I were depressed, I would worry that my medical student friends who knew would tell other students or teachers. ( $n=326$ )	114 (35)	85 (26)	127 (39)
Most people believe that depressed medical students would provide inferior treatment to their patients. ( $n=327$ )	100 (30.6)	99 (30.3)	128 (39.1)
Most medical students would not want to work with a medical student who is depressed. ( $n=328$ )	99 (30.2)	97 (29.5)	132 (40.3)
If I were depressed, I would be blamed for being unable to cope. ( $n=329$ )	98 (29.8)	116 (35.3)	115 (34.9)
Other students would avoid me if they discovered that I was depressed. ( $n=330$ )	84 (25.4)	68 (20.6)	178 (54)
Medical students and teachers believe that a student who has depression is just as intelligent as other students. ( $n=327$ )†	75 (22.9)	78 (23.9)	174 (53.2)
My teachers would ignore me if I were depressed. ( $n=329$ )	46 (14)	81 (24.6)	202 (61.4)
<b>Help-seeking stigma beliefs</b>			
If I were depressed and asked for help, I would be admitting that my coping skills are inadequate. ( $n=329$ )	119 (36.2)	97 (29.5)	113 (34.3)
A medical student who sees a counselor is admitting that he / she is unable handle the stress of medical school. ( $n=326$ )	113 (34.7)	123 (37.7)	90 (27.6)
Seeking help for depression would make me feel less intelligent as a medical student. ( $n=329$ )	94 (28.6)	79 (24)	156 (47.4)
Telling a counselor / mentor that I am depressed would be risky. (my privacy would be revealed.) ( $n=327$ )	92 (28.1)	73 (22.3)	162 (49.6)
If I were depressed, I would seek treatment. ( $n=329$ )†	64 (19.3)	95 (29)	170 (51.7)

\*Disagree in case of a positively worded statement, agree in case of a negatively worded statement was considered as stigmatized response, †Positively worded statement

**Table 2: Personal stigma beliefs by depression scores\***

Variable <sup>†</sup>	PHQ-9 Score			Total	P-value <sup>‡</sup>	Sig
	None to minimal 0-4	Mild 5-9	Mod. to Sev. 10-27			
If I were depressed, I would feel embarrassed or ashamed						
Stigmatized response	28 (31.5)	41 (42.7)	43 (68.2)	112 (45.2)	< 0.0001	S
Non-stigmatized response	61 (68.5)	55 (57.3)	20 (31.8)	136 (54.8)		
Total	89 (100)	96 (100)	63 (100)	248 (100)		
Medical students with depression are to blame for their problems						
Stigmatized response	39 (43.8)	34 (41.0)	45 (68.2)	118 (49.6)	0.0017	S
Non-stigmatized response	50 (56.2)	49 (59.0)	21 (31.8)	120 (50.4)		
Total	89 (100)	83 (100)	66 (100)	238 (100)		
Depression is a sign of personal weakness						
Stigmatized response	63 (63)	55 (56.7)	54 (77.1)	172 (64.4)	0.023	S
Non-stigmatized response	37 (37)	42 (43.3)	16 (22.9)	95 (35.6)		
Total	100 (100)	97 (100)	70 (100)	267 (100)		
Depression is a real medical illness <sup>§</sup>						
Stigmatized response	23 (23.7)	17 (18.3)	7 (9.9)	47 (18)	0.069	NS
Non-stigmatized response	74 (76.3)	76 (81.7)	64 (90.1)	214 (82)		
Total	97 (100)	93 (100)	71 (100)	261 (100)		
If I were depressed, I would worry that my education would suffer						
Stigmatized response	81 (81.8)	88 (87.1)	72 (93.5)	241 (87)	0.073	NS
Non-stigmatized response	18 (18.2)	13 (12.9)	5 (6.5)	36 (13)		
Total	99 (100)	101 (100)	77 (100)	277 (100)		
If I were depressed, I would be unable to complete medical college tasks and responsibilities as well as other students						
Stigmatized response	45 (46.4)	50 (50)	42 (63.6)	137 (52.1)	0.084	NS
Non-stigmatized response	52 (53.6)	50 (50)	24 (36.4)	126 (47.9)		
Total	97 (100)	100 (100)	66 (100)	263 (100)		
Medical students with depression could come out of depression whenever they want to						
Stigmatized response	55 (65.5)	50 (55.5)	44 (69.9)	149 (62.9)	0.164	NS
Non-stigmatized response	29 (34.5)	40 (44.5)	19 (30.1)	88 (37.1)		
Total	84 (100)	90 (100)	63 (100)	237 (100)		
If I were depressed, I would tell my medical college friends <sup>§</sup>						
Stigmatized response	25 (24.3)	28 (26.9)	21 (28.4)	74 (26.3)	0.817	NS
Non-stigmatized response	78 (75.7)	76 (73.1)	53 (71.6)	207 (73.7)		
Total	103 (100)	104 (100)	74 (100)	281 (100)		

\*Ambivalent response category was excluded from the analysis, <sup>†</sup>Disagree in case of a positively worded statement, agree in case of a negatively worded statement was considered as stigmatized response, <sup>‡</sup>Chi square analyses, S – Significant; NS – Not significant; <sup>§</sup>Positively worded statement

On help-seeking stigma beliefs, [Table 4] students with moderate to severe depression felt more strongly that telling a counselor would be risky ( $P = 0.0024$ ), asking for help would mean inadequate coping skills ( $P = 0.0037$ ), seeing a counselor would mean inability to handle stress of medical school ( $P = 0.005$ ), seeking help for depression would make them feel less intelligent ( $P = 0.008$ ).

## DISCUSSION

Prevalence of self-identified depression was 64%. 26.6% of the students were likely to meet the standardized criteria for major depression (PHQ-9 score  $\geq 10$ , likelihood ratio  $\geq 7.1$ ).<sup>[12]</sup> Prevalence of self-identified depression among medical students in previous studies was between 50% to 70%.<sup>[2,5-7]</sup> High levels of depression

across the years also suggest that emotional distress during medical school is chronic and persistent rather than episodic.<sup>[15]</sup>

Prevalence of self-identified depression was significantly higher in the 1<sup>st</sup> and 2<sup>nd</sup> years as compared to 3<sup>rd</sup> and 4<sup>th</sup> years. This finding is consistent with previous studies.<sup>[6,7]</sup> In contrast to this, Kumar *et al.*<sup>[5]</sup> reported higher depression in the 3<sup>rd</sup> and 4<sup>th</sup> year students. Prevalence of self-identified depression was marginally higher in females, but not reaching statistical significance and consistent with earlier studies.<sup>[2,16,17]</sup>

Agreement rate on depression as a sign of personal weakness was close to an Indian study in rural community.<sup>[18]</sup> Agreement rates on ability to snap out of depression and themselves to blame for problems were

**Table 3: Perceived stigma beliefs by depression scores\***

Variable <sup>†</sup>	PHQ-9 Score			Total	P-value <sup>‡</sup>	Sig
	None to minimal 0-4	Mild 5-9	Mod. to Sev. 10-27			
If I were depressed, I would worry that my medical student friends who knew would tell other students or teachers						
Stigmatized response	41 (45.6)	33 (36.7)	40 (65.6)	114 (47.3)	0.0021	S
Non-stigmatized response	49 (54.4)	57 (63.3)	21 (34.4)	127 (52.7)		
Total	90 (100)	90 (100)	61 (100)	241 (100)		
Other students would avoid me if they discovered that I was depressed						
Stigmatized response	29 (30.2)	25 (24.5)	30 (46.9)	84 (32.1)	0.01	S
Non-stigmatized response	67 (69.8)	77 (75.5)	34 (53.1)	178 (67.9)		
Total	96 (100)	102 (100)	64 (100)	262 (100)		
Other students and teachers would view me as unable to handle my responsibilities if I were depressed						
Stigmatized response	40 (44)	38 (41.3)	41 (63.1)	119 (48)	0.017	S
Non-stigmatized response	51 (56)	54 (58.7)	24 (36.9)	129 (52)		
Total	91 (100)	92 (100)	65 (100)	248 (100)		
Most medical students would not want to work with a medical student who is depressed						
Stigmatized response	32 (37.7)	35 (41.2)	32 (52.4)	99 (42.9)	0.189	NS
Non-stigmatized response	53 (62.3)	50 (58.8)	29 (47.6)	132 (57.1)		
Total	85 (100)	85 (100)	61 (100)	231 (100)		
My teachers would ignore me if I were depressed.						
Stigmatized response	12 (13.5)	17 (17.9)	17 (26.6)	46 (18.5)	0.119	NS
Non-stigmatized response	77 (86.5)	78 (82.1)	47 (73.4)	202 (81.5)		
Total	89 (100)	95 (100)	64 (100)	248 (100)		
If I were depressed, I would be blamed for being unable to cope						
Stigmatized response	35 (43.7)	35 (42.2)	28(56)	98 (46)	0.264	NS
Non-stigmatized response	45 (56.3)	48 (57.8)	22 (44)	115 (54)		
Total	80 (100)	83 (100)	50 (100)	213 (100)		
Most people believe that depressed medical students would provide inferior treatment to their patients						
Stigmatized response	34 (39.5)	40 (50)	26 (41.9)	100 (43.9)	0.373	NS
Non-stigmatized response	52 (60.5)	40 (50)	36 (58.1)	128 (56.1)		
Total	86 (100)	80 (100)	62 (100)	228 (100)		
Medical students and teachers believe that a student who has depression is just as intelligent as other students <sup>§</sup>						
Stigmatized response	23 (25.3)	30 (31.9)	22 (34.4)	75 (30.1)	0.425	NS
Non-stigmatized response	68 (74.7)	64 (68.1)	42 (65.6)	174 (69.9)		
Total	91 (100)	94 (100)	64 (100)	249 (100)		
If I were depressed, other medical students would respect my opinions less						
Stigmatized response	46 (56.1)	45 (48.9)	38 (52.8)	129 (52.4)	0.637	NS
Non-stigmatized response	36 (43.9)	47 (51.1)	34 (47.2)	117 (47.6)		
Total	82 (100)	92 (100)	72 (100)	246 (100)		

\*Ambivalent response category was excluded from the analysis, <sup>†</sup>Disagree in case of a positively worded statement, agree in case of a negatively worded statement was considered as stigmatized response, <sup>‡</sup>Chi square analyses, S – Significant; NS – Not significant; <sup>§</sup>Positively worded statement

similar to a study among medical students in Sri Lanka.<sup>[19]</sup> This suggests high stigma exists among students about the causation of depression. Three fourths of the students felt depression would affect their self-efficacy as noted from agreement rates on negative effect of depression on education, ability to handle responsibilities, and feelings of shame. This suggests that failure to work would make them feel like a failed person.<sup>[10,11]</sup>

Thirty to 40% students felt that if depressed, other students

would respect their opinion less, they won't be able to handle responsibilities, and other students would not work with them. These findings combined with significantly higher stigma about working with a depressed student in females, and higher stigma with increasing academic year indicates an environment in which students discriminate fellow colleagues based on the presence of depression.

This study provides a view of the stigma perceived by students reporting depression in contrast to non-



**Table 4: Help-seeking stigma beliefs by depression scores\***

Variable <sup>†</sup>	PHQ-9 Score			Total	P-value <sup>‡</sup>	Sig
	None to minimal 0-4	Mild 5-9	Mod. to Sev. 10-27			
Telling a counselor / mentor that I am depressed would be risky. (my privacy would be revealed)						
Stigmatized response	24 (25)	33 (36.7)	35 (51.5)	92 (36.2)	0.0024	S
Non-stigmatized response	72 (75)	57 (63.3)	33 (48.5)	162 (63.8)		
Total	96 (100)	90 (100)	68 (100)	254 (100)		
If I were depressed and asked for help, I would be admitting that my coping skills are inadequate						
Stigmatized response	34 (39.1)	46 (52.9)	39 (67.2)	119 (51.3)	0.0037	S
Non-stigmatized response	53 (60.9)	41 (47.1)	19 (32.8)	113 (48.7)		
Total	87 (100)	87 (100)	58 (100)	232 (100)		
A medical student who sees a counselor is admitting that he / she is unable handle the stress of medical school						
Stigmatized response	33 (43.4)	39 (55.7)	41 (71.9)	113 (55.7)	0.005	S
Non-stigmatized response	43 (56.6)	31 (44.3)	16 (28.1)	90 (44.3)		
Total	76 (100)	70 (100)	57 (100)	203 (100)		
Seeking help for depression would make me feel less intelligent as a medical student						
Stigmatized response	27 (30.3)	30 (33)	37 (52.9)	94 (37.6)	0.008	S
Non-stigmatized response	62 (69.7)	61 (67)	33 (47.1)	156 (62.4)		
Total	89 (100)	91 (100)	70 (100)	250 (100)		
If I were depressed, I would seek treatment <sup>§</sup>						
Stigmatized response	19 (20.9)	25 (29.4)	20 (34.5)	64 (27.4)	0.167	NS
Non-stigmatized response	72 (79.1)	60 (70.6)	38 (65.5)	170 (72.6)		
Total	91 (100)	85 (100)	58 (100)	234 (100)		

\*Ambivalent response category was excluded from the analysis, <sup>†</sup>Disagree in case of a positively worded statement, agree in case of a negatively worded statement was considered as stigmatized response, <sup>‡</sup>Chi square analyses, S – Significant; NS – Not significant; <sup>§</sup>Positively worded statement

**Table 5: Socio-demographic data of the study sample**

Variable	No. (%) of participants (n = 331)
Age in years	
17	9 (2.7)
18	70 (21.1)
19	63 (19)
20	79 (23.9)
21	75 (22.7)
22	29 (8.8)
23	6 (1.8)
Sex	
Male	178 (53.8)
Female	153 (46.2)
Academic year	
1	85 (25.7)
2	91 (27.5)
3 (3 <sup>rd</sup> part I)	82 (24.8)
4 (3 <sup>rd</sup> part II)	73 (22)

depressed students. In an environment where students were likely to discriminate fellow colleagues based on the presence of depression, students having higher levels of depression were likely to face higher discrimination.

On personal stigma beliefs, students with moderate to severe depression felt more strongly that they would feel embarrassed or ashamed and they were to blame for their problems. Students feeling embarrassed or ashamed

may turn a blind eye towards their problems.<sup>[20]</sup> This is reflected in help-seeking stigma beliefs; students with moderate to severe depression felt more strongly that confidentiality would not be maintained by friends, teachers, and counselors, and asking for help would make them feel inadequate and less intelligent.

Students with moderate to severe depression had significantly higher need for psychological help; however, due to the high levels of stigmatizing beliefs, they were least likely to seek help. These findings are consistent with a study by Manos *et al.*, which supports a model in which “an individual experiences depressive symptoms, which leads to stigmatizing experiences and an increase in the salience of stigmatizing attitudes about depression, which in turn leads to avoidance.”<sup>[21]</sup>

Highest levels of self-identified depression and need for academic help were seen in the 1<sup>st</sup> year. In an earlier study, 1<sup>st</sup> year students indicated experiencing the highest degree of pressure from studies.<sup>[22]</sup> Students with moderate to severe depression had significantly higher need for academic help.

In conclusion, high stigma exists among students about the causation of depression, and there exists

**Table 6: Gender-wise variation in study variables**

Variable	Gender		Total	P-value <sup>†</sup>	Sig.
	Male	Female			
PHQ-9 Scores					
None to minimal (0-4)	68 (38.2)	51 (33.3)	119 (36)	0.644	NS
Mild (5-9)	65 (36.5)	59 (38.5)	124 (37.4)		
Mod. to Sev. (10-27)	45 (25.3)	43 (28.2)	88 (26.6)		
Total	178 (100)	153 (100)	331 (100)		
Need for psychological help					
Yes	72 (40.4)	70 (45.7)	142 (42.9)	0.331	NS
No	106 (59.6)	83 (54.3)	189 (57.1)		
Total	178 (100)	153 (100)	331 (100)		
Need for academic help					
Yes	94 (53.1)	88 (57.5)	182 (55.2)	0.422	NS
No	83 (46.9)	65 (42.5)	148 (44.8)		
Total	177 (100)	153 (100)	330 (100)		
Perceived stigma item — Most medical students would not want to work with a medical student who is depressed					
Stigmatized response <sup>†</sup>	46 (36.2)	53 (50.9)	99 (42.9)	0.0341	S
Non-stigmatized response	81 (63.8)	51 (49.1)	132 (57.1)		
Total	127 (100)	104 (100)	231 (100)		
Personal stigma item — If I were depressed, I would be unable to complete medical college tasks and responsibilities as well as other students					
Stigmatized response	64 (44.1)	73 (61.9)	137 (52.1)	0.0062	S
Non-stigmatized response	81 (55.9)	45 (38.1)	126 (47.9)		
Total	145 (100)	118 (100)	263 (100)		

\*Chi square analysis; S – Significant; NS – Not significant; <sup>†</sup>Disagree in case of a positively worded statement; agree in case of a negatively worded statement was considered as stigmatized response

**Table 7: Academic year-wise variation in study variables**

Variable	Academic year				Total	P-value*	Sig.
	1	2	3	4			
PHQ-9 Scores <sup>†</sup>							
None to minimal (0-4)	20 (23.6)	32 (35.2)	33 (40.3)	34 (46.6)	119 (36)	0.064	NS
Mild (5-9)	41 (48.2)	36 (39.5)	25 (30.4)	22 (30.1)	124 (37.4)		
Mod. to Sev. (10-27)	24 (28.2)	23 (25.3)	24 (29.3)	17 (23.3)	88 (26.6)		
Total	85 (100)	91 (100)	82 (100)	73 (100)	331 (100)		
Need for psychological help							
Yes	41 (48.2)	36 (39.5)	35 (42.7)	30 (41.1)	142 (42.9)	0.682	NS
No	44 (51.8)	55 (60.5)	47 (57.3)	43 (58.9)	189 (57.1)		
Total	85 (100)	91 (100)	82 (100)	73 (100)	331 (100)		
Need for academic help							
Yes	55 (65.5)	57 (62.6)	37 (45.1)	33 (45.2)	182 (55.2)	0.008	S
No	29 (34.5)	34 (37.4)	45 (54.9)	40 (54.8)	148 (44.8)		
Total	84 (100)	91 (100)	82 (100)	73 (100)	330 (100)		
Perceived stigma item — Most medical students would not want to work with a medical student who is depressed							
Stigmatized response <sup>‡</sup>	12 (22.6)	28 (46.7)	29 (46.8)	30 (53.6)	99 (42.9)	0.0067	S
Non-stigmatized response	41 (77.4)	32 (53.3)	33 (53.2)	26 (46.4)	132 (57.1)		
Total	53 (100)	60 (100)	62 (100)	56 (100)	231 (100)		
Personal stigma item — If I were depressed, I would tell my medical college friends <sup>§</sup>							
Stigmatized response	10 (14.3)	17 (22.1)	25 (37.9)	22 (32.4)	74 (26.3)	0.0082	S
Non-stigmatized response	60 (85.7)	60 (77.9)	41 (62.1)	46 (67.6)	207 (73.7)		
Total	70 (100)	77 (100)	66 (100)	68 (100)	281 (100)		

\*Chi square analysis; S – Significant; NS – Not significant; <sup>†</sup>First and second years, third and fourth years were clubbed and analyzed for difference in absence (PHQ-9 score 0-4) or presence of self-identified depression (PHQ-9 score  $\geq 5$ ), the results were statistically significant. ( $P = 0.0096$ ),

<sup>‡</sup>Disagree in case of a positively worded statement, agree in case of a negatively worded statement was considered as stigmatized response, <sup>§</sup>Positively worded statement

**Table 8: Depression scores by perceived needs**

Variable	PHQ-9 Scores			Total	P-value*	Sig.
	None to minimal 0-4	Mild 5-9	Mod. to Sev. 10-27			
Need for psychological help						
Yes	25 (21)	52 (41.9)	65 (73.9)	142 (42.9)	< 0.0001	S
No	94 (79)	72 (58.1)	23 (26.1)	189 (57.1)		
Total	119 (100)	124 (100)	88 (100)	331 (100)		
Need for academic help						
Yes	41 (34.5)	71 (57.3)	70 (80.5)	182 (55.2)	< 0.0001	S
No	78 (65.5)	53 (42.7)	17 (19.5)	148 (44.8)		
Total	119 (100)	124 (100)	87 (100)	330 (100)		

\*Chi square analysis; S – Significant; NS – Not significant

an environment in which students discriminate fellow colleagues based on the presence of depression. Depressed students were more likely to be discriminated, leading to higher salience of certain personal and help-seeking stigma attitudes as compared to non-depressed students. They were least likely to seek treatment and support even though they felt higher needs for psychological help than the non-depressed students. This raises the need for increasing awareness, support from peers and faculty, and improving structure of medical curriculum.

Limitation of the study is that the study was cross-sectional survey. Further longitudinal studies with intervention need to be planned to see the outcome.

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